

**AMENDMENTS TO THE CLAIMS:**

1. (previously presented) A method for characterization of a candidate agent according to its effect on allergic/atopic conditions, the method comprising:

contacting said candidate agent with an asthma/atopy context system selected from

(a) primary human umbilical vein endothelial cells (HUVEC) in the presence of IL-4 and histamine with at least three different cellular parameters selected from CD55, VCAM-1, P-selectin, Eotaxin-3, MCP-1, VEGF receptor 2 and uPAR (CD87);

(b) HUVEC and T cells in the presence of IL-2 and superantigen with at least three different parameters selected from IFN- $\gamma$ , TNF- $\alpha$ , IL-2, IL-4, IL-5, IL-8, IL10, IL-13, LT- $\alpha$ , CCR4, CCR5, CXCR3, IL-4R $\alpha$ , CD11c, CD38, CD40, CD69, E-Selectin, Eotaxin-3, CD106, CD134, CD150, CD137, CD69, CD200, B7-H1, B7-H2, MIG and CD87;

(c) Human neonatal fibroblasts (HDFn) in the presence of TNF, IL-1, IFN and TGF $\beta$  with at least three different parameters selected from ICAM, VCAM, CD40, CD90, IP-10, MCP-1, Collagen I, Mig, m-CSF, TIMP-2, PAI-I, and IL-8

(d) HDFn in the presence of TGF $\beta$  with at least three different parameters selected from CD90, Collagen I, Collagen III, HLA-DR, PAI-I, and VCAM

(e) human bronchial epithelial cells and HDFn in the presence of IL-4 and TNF $\alpha$  with at least three different parameters selected from ICAM-1, IL-1 $\alpha$ , IP-10, TGF- $\beta$ , MIG, HLA-DR, PAI-1, I-TAC, MMP-1, MMP-9, CD87 and Keratin 8/18

(f) primary human umbilical artery smooth muscle cells in the presence of IL-4 and histamine with at least three different parameters selected from VCAM, CD40, HLA-DR, ICAM, IL-8, MCP-1, M-CSF, MIG, Thrombomodulin, and uPAR;

(g) primary human umbilical artery smooth muscle cells in the presence of IL-1, TNF- $\alpha$  and IFN $\gamma$  with at least three different parameters selected from VCAM, CD40, HLA-DR, ICAM, IL-8, MCP-1, M-CSF, MIG, Thrombomodulin, and uPAR;

(h) human bronchial epithelial cells in the presence of IL-1 $\beta$ , TNF $\alpha$  and IFN- $\gamma$  with at least three different parameters selected from ICAM-1, IL-1 $\alpha$ , IP-10, TGF- $\beta$ , MIG, HLA-DR, PAI-1, I-TAC, MMP-1, MMP-9, CD87 and Keratin 8/18;

and (i) human bronchial epithelial cells in the presence of IL-4, IL-13 and TNF $\alpha$  with at least three different parameters selected from Eotaxin-3, ICAM-1, IL-1 $\alpha$ , IL-8, TGF- $\beta$ , PAI-1, MMP-9, uPA and Keratin 8/18;

measuring changes in parameters as a result of introduction of said candidate agent in said at least three different parameters;

deriving a biological dataset from said changes in parameters, wherein said biological dataset comprises control data from said asthma/atopy context system lacking said candidate agent;

comparing said biological dataset to a reference biological dataset that includes predetermined agents that target specific asthma/atopy pathways to determine the presence of variation, wherein the presence or absence of variation from said reference biological datasets provides a characterization of said candidate agent's effect on allergic/atopic conditions.

2. (previously presented) The method according to Claim 1, wherein said candidate agent is a polynucleotide or analog thereof.

3. (previously presented) The method according to Claim 1, wherein said candidate agent is a drug or polypeptide.

4. (canceled)

5. (previously presented) A method for characterization of a candidate agent according to its effect on allergic/atopic conditions, the method comprising:

contacting said candidate agent with a plurality of asthma/atopy context systems selected from

(a) primary human umbilical vein endothelial cells (HUVEC) in the presence of IL-4 and histamine with at least three different cellular parameters selected from CD55, VCAM-1, P-selectin, Eotaxin-3, MCP-1, VEGF receptor 2 and uPAR (CD87);

(b) HUVEC and T cells in the presence of IL-2 and superantigen with at least three different parameters selected from IFN- $\gamma$ , TNF-alpha, IL-2, IL-4, IL-5, IL-8, IL10, IL-13, LT-alpha, CCR4, CCR5, CXCR3, IL-4Ralpha, CD11c, CD38, CD40, CD69, E-Selectin, Eotaxin-3, CD106, CD134, CD150, CD137, CD69, CD200, B7-H1, B7-H2, MIG and CD87;

(c) Human neonatal fibroblasts (HDFn) in the presence of TNF, IL-1, IFN and TGF $\beta$  with at least three different parameters selected from ICAM, VCAM, CD40, CD90, IP-10, MCP-1, Collagen I, Mig, m-CSF, TIMP-2, PAI-I, and IL-8

(d) HDFn in the presence of TGF $\beta$  with at least three different parameters selected from CD90, Collagen I, Collagen III, HLA-DR, PAI-I, and VCAM

(e) human bronchial epithelial cells and HDFn in the presence of IL-4 and  $\text{TNF}\alpha$  with at least three different parameters selected from ICAM-1, IL-1a, IP-10, TGF- $\beta$ , MIG, HLA-DR, PAI-1, I-TAC, MMP-1, MMP-9, CD87 and Keratin 8/18

(f) primary human umbilical artery smooth muscle cells in the presence of IL-4 and histamine with at least three different parameters selected from VCAM, CD40, HLA-DR, ICAM, IL-8, MCP-1, M-CSF, MIG, Thrombomodulin, and uPAR;

(g) primary human umbilical artery smooth muscle cells in the presence of IL-1,  $\text{TNF-}\alpha$  and  $\text{IFN}\gamma$  with at least three different parameters selected from VCAM, CD40, HLA-DR, ICAM, IL-8, MCP-1, M-CSF, MIG, Thrombomodulin, and uPAR;

(h) human bronchial epithelial cells in the presence of IL-1 $\beta$ ,  $\text{TNF}\alpha$  and  $\text{IFN-}\gamma$  with at least three different parameters selected from ICAM-1, IL-1a, IP-10, TGF- $\beta$ , MIG, HLA-DR, PAI-1, I-TAC, MMP-1, MMP-9, CD87 and Keratin 8/18;

and (i) human bronchial epithelial cells in the presence of IL-4, IL-13 and  $\text{TNF}\alpha$  with at least three different parameters selected from Eotaxin-3, ICAM-1, IL-1a, IL-8, TGF- $\beta$ , PAI-1, MMP-9, uPA and Keratin 8/18;

measuring changes in parameters as a result of introduction of said candidate agent in said at least three different parameters;

deriving a biological dataset from said changes in parameters, wherein said biological dataset comprises control data from asthma/atopy context systems lacking said candidate agent;

comparing said biological dataset to a reference biological dataset that includes predetermined agents that target specific asthma/atopy pathways to determine the presence of variation, wherein the presence or absence of variation from said reference biological datasets provides a characterization of said candidate agent's effect on allergic/atopic conditions.

6. (previously presented) A method for characterization of a candidate agent according to its effect on allergic/atopic conditions, the method comprising:

contacting said candidate agent with a plurality of asthma/atopy context systems selected from

(a) primary human umbilical vein endothelial cells (HUVEC) in the presence of IL-4 and histamine with at least three different cellular parameters selected from CD55, VCAM-1, P-selectin, Eotaxin-3, MCP-1, VEGF receptor 2 and uPAR (CD87);

(b) HUVEC and T cells in the presence of IL-2 and superantigen with at least three different parameters selected from  $\text{IFN-}\gamma$ ,  $\text{TNF-}\alpha$ , IL-2, IL-4, IL-5, IL-8, IL10, IL-13, LT- $\alpha$ , CCR4, CCR5,

CXCR3, IL-4Ralpha, CD11c, CD38, CD40, CD69, E-Selectin, Eotaxin-3, CD106, CD134, CD150, CD137, CD69, CD200, B7-H1, B7-H2, MIG and CD87;

(c) Human neonatal fibroblasts (HDFn) in the presence of TNF, IL-1, IFN and TGF $\beta$  with at least three different parameters selected from ICAM, VCAM, CD40, CD90, IP-10, MCP-1, Collagen I, Mig, m-CSF, TIMP-2, PAI-I, and IL-8

(d) HDFn in the presence of TGF $\beta$  with at least three different parameters selected from CD90, Collagen I, Collagen III, HLA-DR, PAI-I, and VCAM

(e) human bronchial epithelial cells and HDFn in the presence of IL-4 and TNF $\alpha$  with at least three different parameters selected from ICAM-1, IL-1a, IP-10, TGF- $\beta$ , MIG, HLA-DR, PAI-1, I-TAC, MMP-1, MMP-9, CD87 and Keratin 8/18

(f) primary human umbilical artery smooth muscle cells in the presence of IL-4 and histamine with at least three different parameters selected from VCAM, CD40, HLA-DR, ICAM, IL-8, MCP-1, M-CSF, MIG, Thrombomodulin, and uPAR;

(g) primary human umbilical artery smooth muscle cells in the presence of IL-1, TNF- $\alpha$  and IFN $\gamma$  with at least three different parameters selected from VCAM, CD40, HLA-DR, ICAM, IL-8, MCP-1, M-CSF, MIG, Thrombomodulin, and uPAR;

(h) human bronchial epithelial cells in the presence of IL-1 $\beta$ , TNF $\alpha$  and IFN- $\gamma$  with at least three different parameters selected from ICAM-1, IL-1a, IP-10, TGF- $\beta$ , MIG, HLA-DR, PAI-1, I-TAC, MMP-1, MMP-9, CD87 and Keratin 8/18;

and (i) human bronchial epithelial cells in the presence of IL-4, IL-13 and TNF $\alpha$  with at least three different parameters selected from Eotaxin-3, ICAM-1, IL-1a, IL-8, TGF- $\beta$ , PAI-1, MMP-9, uPA and Keratin 8/18;

measuring changes in parameters as a result of introduction of said candidate agent in said at least three different parameters;

deriving a biological dataset from said changes in parameters, wherein said biological dataset comprises control data from said asthma/atopy context system lacking said candidate agent;

comparing said biological dataset to a reference biological dataset that includes predetermined agents that target specific asthma or atopy pathways to determine the presence of variation, wherein the presence or absence of variation from said reference biological datasets provides a characterization of said candidate agent's effect on allergic/atopic conditions wherein said plurality of systems are concatenated for simultaneous analysis.